
LABORATORY VENTILATION: ENERGY CONTROL STRATEGIES

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Balance: Personal Protection
Energy Cost
User Functions

PERSONAL PROTECTION CONSIDERATIONS

CONTAMINANT CONTROL
ROOM DILUTION
DIRECTIONAL AIRFLOW

ENERGY CONTROL STRATEGIES

REDUCE OPERATING TIME
HEAT RECOVERY SYSTEMS
USE AUXILIARY AIR HOODS
REDUCE QUANTITY OF AIR EXHAUSTED

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Limit face opening

Reduce face velocity

Use variable air volume

Diversity

Use of special local exhaust hoods

LIMIT FACE OPENING

REDUCE WIDTH OF HOOD

LIMIT VERTICAL SASH HEIGHT

USE OF HORIZONTAL SLIDING SASH

HEALTH CONCERNS

REDUCED FACE VELOCITY

Loss of Containment

VARIABLE AIR VOLUME

Minimum Room Air Exchange

EXAMPLE 1 CONSTANT VOLUME HOOD

HOOD WIDTH (feet)	SASH HEIGHT (feet)	FACE OPENING (sq. feet)	FACE VELOCITY (fpm)	VOLUME FLOW (cfm)	FACTOR
6	2.5	15	100	1500	1
6	2.5	15	80	1200	.8
6	1.5	9	100	900	.6
4	1.5	6	100	600	.4
4	1.5	6	80	480	.3
6	2' H Panels	5	100	500	.3
6*	2' H Panels	5	100	500	.15

*12 hours Operation

EXAMPLE 2 VARIABLE VOLUME HOOD

HOOD WIDTH <u>FEET</u>	AVERAGE SASH <u>OPENING %</u>	FACE VELOCITY <u>fpm</u>	VOLUME FLOW <u>cfm</u>	<u>FACTORS</u>
6	100%	100	1500	1
6	50%	100	900	.6
6	25%	100	475	.3